ORIGINS

• Journal of the Biblical Creation Society •

Volume 1 Number 1

in this issue:

Chaos in the Cosmos

Computers and Creation

The Blind Watchmaker?

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Cover Illustration: 'Let there be Light . . .' Over North Hill, Minehead, Somerset.

Guest Editorial

by Nigel M.de.S. Cameron, original editor
of 'Biblical Creation'

When a small group of us began to plan for the BCS and **Biblical Creation** in the mid-1970's we hardly dared to believe that much would come of our efforts. I remember heads nodding when someone suggested that we might find sixty or seventy people interested in joining such a society. When the talk turned (some time later) to founding a journal it was hard even to convince ourselves that it would be viable.

Well, here we are in 1987; still going strong, and presenting a 'thinking man's' creationism to the Christian world outside. The distinctive character of the work of BCS is perhaps best indicated like this: it is **scholarly in its content,** without wild denunciations or unsubstantiated claims; it is **broad in its scope,** with room for Christians with a variety of views on what **did** happen, even as they are agreed on what did not; is **biblical in its approach,** repudiating by implication the idea that what Christians believe about creation can be decided without reference to Scripture (a belief that many creationists and evolutionists seem to hold in common).

Of course, not every reader of Origins (originally Biblical Creation) is likely to agree with each of these: but they indicate the general position of the Society over the years. I think myself that they are of particular importance, both in explaining the development of the Society and in determining its influence for the future.

Partly a cause of the success of BCS, but partly also its fruit, has been a growing acceptance of Christian opposition to evolution in Britain. Back in the early 70's it was hardly a serious option in many evangelical circles. Now it **is** such an option, and one which is taken up increasingly. The facile notion that the biological theory can be finally isolated from the philosophical is wearing thinner every year. And the happy belief that creationists need to indulge in perverse and 'literalist' exegesis to make the Bible agree with them seems to be on the way out.

So I am delighted to commend this new-style successor to 'BC' to its readers. The great need is to get this message out as loud as we can, putting this journal into the hands of those who can put it to use. The Society has re-invigorated the journal by making the changes you can see; it could do so much more with even wider support. How many new subscribers might you be able to introduce during 1987?

Editorial

Not another Christian magazine? Well, yes and no! 'Origins' is the Journal of the Biblical Creation Society in a new suit of clothes; previously in a smaller format, and called 'Biblical Creation'. We have tried to make it more attractive and easy to read, and to that end intend to include more popular articles for the layman, as well as one main 'technical' article in each issue. We hope that these changes will make the Journal more accessible to the general Christian public, so that the vital importance of these issues is widely understood. Your comments on these changes - and any other matters - would be most welcome.

In this first issue under our new title, Richard Dawkins, author of 'the Blind Watchmaker', receives considerable attention! We have a first reaction to his latest book, from one of his former students at Oxford. Judging by the controversy already generated in both secular and religious spheres, it will be some time before the dust settles, and we will no doubt carry further reflection on his arguments in these pages. Dr. Dawkins has at least paid us (or more correctly one of our forebears) the compliment of taking the argument from design seriously. He admits that things do **look** as though they were designed, even if he sets out to prove that they were not!

It is also fitting that our main technical article should be concerned with the 'beginning of everything', and the whole universe itself. In addition the topicality of the subject of creation is seen in the article on computers, and a contribution on the statistical improbability of Evolution throws an interesting sidelight on Dawkins' ideas.

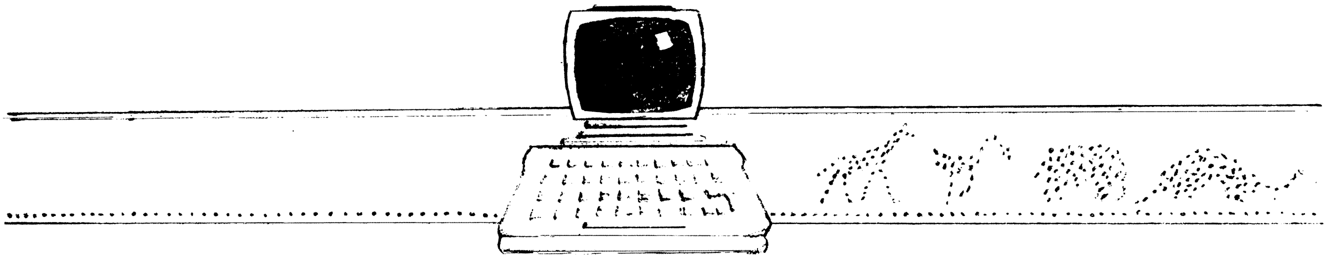
Despite the outward changes, there is no change in the stand of BCS, as outlined in the Guest Editorial. We are committed to honest enquiry and good science, constrained only by the infallible Word of God. Very shortly we intend to publish, probably in this journal, a document which seeks to establish the biblical framework concerning origins within which legitimate differences may exist, setting an agenda for further theological and scientific research, and we trust this will be of great benefit to the people of God. A series of articles are planned to follow which will examine different aspects of this biblical base in detail; e.g. the doctrine of man 'made in God's image'.

We intend to publish further series of articles, such as 'Engineering Design copied from Creation', in addition to the regular news features that you see in this edition. Guidelines for those who may feel able to contribute in the future are contained elsewhere.

Our desire is not to provide entertainment, or to have another dig at evolution and its' proponents. It is to reveal the glory of creation, and our Creator, and to show how these truths must affect the way in which we think and the way we live. May it be so, for Christ's sake.

M. G. Matthews

Computers And Creation



The Creation Connection.

Max Headroom is a character created by some very clever computer programming, and appears on our television screens as an almost believable person. He gives a passable imitation of talking,moving, even thinking; but there is no reality behind the image. To build a full three-dimensional moving hologram of such a person would entail incredible computing power apart from other necessary technology: to build a 'computer model' of a real, eating, sleeping, living, dying human being is totally beyond our imagining. Between the fleeting image, the passing similarity, and the infinitely complex reality is a huge gulf.

In his book, 'The Blind Watchmaker',[1] Richard Dawkins shows how a few lines and shapes can be mutated on the computer screen so that they bear passing resemblances to insects and other objects. He uses this as an illustration, a 'computer model' of how, over a series of small steps, one creature evolved into another. It is all most fascinating; but, apart from any other consideration, the difference between the image with a few lines, and the complexity of even the simplest form of life, is, as stated above, quite unimaginable.

This is but the latest of a number of incidents where computers have been plugged in on one side or the other in the battle for creation. Though at first sight there would appear to be no connection, these incredible children of the twentieth century, these machines which add one to one (and that is basically all they do) at a speed approaching that of light, are being used more and more to probe the 'mystery' of origins.

The Genetic Code.

As long ago as 1982 (which is like the Middle Ages in computer terms), an article was published in Practical Computing [2] which likened the operation of DNA, the chemical from which genes are made, to a machine code program in a computer. Machine code is a series of very simple instructions at the heart of a computer; whatever program sits 'on top', whatever the user is doing - whether it be drawing, calculating, writing letters, or playing games, the same set of instructions are used at machine code level. And so with DNA; long chains of 'code' are built up from just 4 chemical bases. These can be combined in almost an infinite number of different ways. The article acknowledged the connection with creation by the accompanying picture of Adam and Eve - holding an Apple computer! But the computer program which followed the article, which modelled the self-replicating process of genes, was called the 'Biological Evolution Game'. There was nothing in the article or the program which suggested evolution, but it was taken for granted that gradual mutation was the method by which all genes came into being. The origin of this amazing code, by which all living matter reproduces, is a matter of faith.

The Intelligent Machine.

How many of us have sat in front of a computer, and asked, 'What is it thinking?' Well, **can** computers think? This is yet another battleground, where religion, Darwin, et al have been drafted in to bolster arguments. Computer scientists are working hard to give their machines what they call 'artificial intelligence', and the question arises, can machines ever have **real** intelligence? As a correspondent in 'Computing' says, [3] 'The question all depends on what you mean by intelligence!' Some scientists believe that emotions, conscience, morality, are all products of evolution, and they were 'developed' as strategies for survival. Even the highest and noblest of actions - self-sacrifice - is reduced to pure selfishness, and once again Richard Dawkins (in his book 'The Selfish Gene') is used for support. Some visionaries not only conceive of machines that are capable of all these things, 'there is nothing in any of the above (spirituality, consciousness, morality) which cannot in principal be incorporated into a man-made machine,' [4] but of computers that design and reproduce themselves.

At present the science of 'artificial intelligence' is represented by 'expert systems'. It is possible to incorporate into such programs a vast store of knowledge and experience, so that answers to complex problems are given, which a human being could not assimilate. But is this intelligence? It would be better termed 'artificial experience', for, try as they might, those who build and program computers will only receive answers which are in complete conformity with the instructions they give. There is an expression in the computer industry which neatly expresses this truth, 'GIGO'; garbage in, garbage out! [5] If we take a view of man which is **totally** deterministic and mechanistic, in other words, that he is a machine whose course is totally predictable if we had all the information on the physical factors affecting him, then machines can indeed possess intelligence.

The Bible, however, tells us that man has a 'soul', a totally non-material element in his constitution; furthermore, he is able to love a God whom he has never seen. It is difficult to see how love for a totally imaginary being (for that is what He is, according to the atheistic Darwinist) could benefit the species : indeed, how could a machine 'imagine' something outside its material existence in any event? If intelligence is merely the capacity for logical deduction, then computers may be counted intelligent : but if it involves that which distinguishes man from the animals, if it involves his capacity for abstract thought, and his unique spiritual nature, then the quest for really intelligent machines is as fruitless as the search for perpetual motion.

Where from and Where to?

Richard Dawkins' program which gave rise to what he calls his 'biomorphs', the insect-like shapes, contains some ingenious concepts. It has certain sections (procedures) which model reproduction (how one form generates another) and development (how the object grows, according to the genes it has inherited). Normally this would mean identical 'children', but he introduces some random numbers into the 'genes' at the reproduction stage, so that the genes have 'mutations', thus giving rise to different shapes. He selects the 'child' which he wants to father the next generation, on whatever basis he chooses, and this is supposed to model the process of 'natural selection', by which he claims that all life evolved; in reality, selection is carried out by the time-honoured means of the 'survival of the fittest', he claims.

This model has a number of serious weaknesses, many of which its originator recognises, if not, to my mind, adequately dealing with them. At the outset, the process of genetic reproduction is taken for granted. The mechanism whereby the coded instructions give rise to proteins, to living beings, must be in place at the beginning; in other words, the genetic **language** with all its complex syntax and symbols, is spoken and understood by the chemical world. The question then arises - Who taught it? The analogy with human language is striking; the evidence points to language becoming simpler, less complex, over a time, and there is no sign of a 'primitive' code in far off days.

Dawkins demonstrates how quickly random changes to a random series of letters can give rise to a required phrase, when one is **looking** for that particular answer. He sees the trap in this idea, because evolution has no 'target' - hence the 'blind' watchmaker - but sidesteps the issue by insisting that each tiny mutation that helps towards survival, is the one that will be selected. In effect he is saying that what survives, survives! Each step towards the eye, he says, is useful - the light-sensitive skin, the change in neural apparatus, the recognition processes. But this is stretching credulity to its limits; at every turn it assumes selection with an end in view. As a reviewer in 'The Listener' put it; 'All his experiments would so clearly have got nowhere without a pre-ordained finishing point, or at least an external arbiter, they might almost be described as auto-teleological - demonstrations of Dawkins scoring an own goal!' [6]

The Creative Use of Computers.

Computers are very powerfull tools. Many structures, many events - such as space travel - would not be possible without them. But tools they are - they will never 'take over', as science fiction writers portray it. If they are used for evil means, they will be in the same category as other weapons - from the stone axe to Reagan's 'Star Wars'. Comparison with these machines should teach us, not our mechanistic nature and origin, but how utterly unique we are, how 'fearfully and wonderfully made'!

We must also see clearly that a computer works totally to a series of instructions. To produce meaning, to make informed selections, from its output, needs **intelligence** - human or divine! [7] We can, however, make use of this tool in many ways in exploring the question of origins, - and Richard Dawkins has demonstrated a useful simulation which could be used to portray the **limits** of genetic change within a given gene pool. David Lyon has put his finger on the key point in this debate; '.... Ecclesiastes made it perfectly clear. Respect for God is the root of wisdom .... we cannot move from information to wisdom, but we can move the other way.' [8] Unless our eyes are opened by the Lord, we will indeed be blind to His handiwork. It is not the watchmaker who is blind, but the programmer and his 'biomorphs'!

Footnotes.

[1] R. Dawkins. 'The Blind Watchmaker', Longman, 1986

[2] J. Leach. 'DNA - the first Machine Code', Practical Computing, January 1982

[3] D. H. Potter, letter, 'Computing', October 9th 1986

[4] E. Cunion, letter, 'Computing', November 6th 1986

[5] R. Dawkins attempts to refute this, by saying that Shakespeare was 'programmed', with words, and words is all he produced. But the bard arranged those words meaningfully - he added information. If the 'biomorphs' are anything except random lines, they are given meaning by their originator.

[6] Christopher Bidmead, 'The Survival of the fittest theory of Creation', The Listener, 5th February 1987

[7] For an excellent technical discussion of all these issues see A. E. Wilder Smith, 'The Creation of Life - a cybernetic approach to evolution', Master Books, 1970. Despite its comparative age the arguments are still pertinent.

[8] D. Lyon, 'The Silicon Society', p. 92, Lion, 1986

Noticeboard

Visit of Australian Creationist.

During July John Mackay, Founding Director of the Australian Creation Science Foundation, will be in this country, speaking at a number of meetings. This will include, D.V., a meeting on the evening of Friday July 17th in the Manchester area (further details from Sylvia Baker, 22a, Stalybridge Road, Mottram-via-Hyde, Cheshire), under the auspices of the B.C.S., and an afternoon meeting in Westminster Chapel, London, on Saturday July 18th, jointly sponsored by the Creation Science Movement and the Biblical Creation Society. For other information concerning John MacKay's itinerary, contact Dr. David Rosevear, 50, Brecon Avenue, Portsmouth, Hants, PO6 2AW.

Children's Magazine.

A 4-page 3-colour children's magazine, 'Our World', simply illustrating some creationist topics, including practical tips and puzzles, and published three times a year, is available from Geoff Chapman, Somerset Creationist Group, Mead Farm, Downhead, West Camel, Yeovil, BA22 7RQ.

Writing for Origins.

'Origins' is looking for talented new writers, particularly those who have expertise in a specialized field of science or theology, in relation to creation, and who are in sympathy with the aims and basis of the B.C.S. In addition writers in a popular vein are needed, but accuracy and solid content are still essential. Any manuscripts for consideration should be ideally be typed, double-spaced and sent to the Editor. News items that may be of interest are also sought.

Editorial Policy.

While 'Origins' exists to further the aims of the Biblical Creation Society, opinions expressed in articles and signed editorials are not necessarily shared by either the Editorial Committee or the Society.

Credits.

Graphic Design and Artwork by Steve Carroll, Reading
Illustrations by N. Raine Matthews

News Of Creation

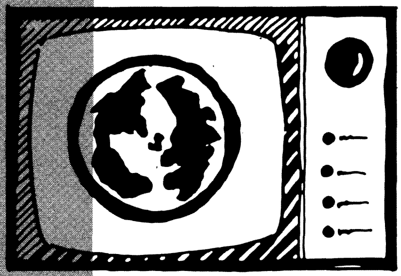
Over the past year creation has been debated, propounded, derided in many quarters. In this column we give news of the activities of those who seek to bring Gods truth concerning origins to differing audiences around the world - both Christians and non-Christians. In future issues we hope to have some larger reports concerning the cause of creation in different countries.

In February 1986 a debate was held in Oxford on the validity of creation viz-a-viz evolution. Professors Wilder Smith and Edgar Andrews spoke for creation, with Professor Maynard Smith and Dr Richard Dawkins for evolution; other speakers were students. Apart from the main speakers the level of debate was poor and often puerile, a sad reflection on the importance this vital topic was accorded. The only substantial scientific arguments, in the writers view, came from the creationist Professors; an interaction with some of the arguments by Richard Dawkins is contained in a separate article by David C. C. Watson. Tapes of the complete debate are available from B. W. Grantham-Hill, 9, Courtland Road, Shiphey, Torquay, Devon TQ2 6JU for £5.75.

David C. C. Watson has also been tirelessly globetrotting in the cause of creation. In September 1986 he was speaking at a seminar at Union Biblical Seminary Pune (formerly Poona) India; Hindu converts showed great interest, but some opposition came from a British staff member. Throughout 1986 and 1987 he and Gerald Duffett have had opportunities to speak in various colleges at Cambridge University.

Earlier, in June of 1984 and 1985, Rev. Glen Zweck gave lectures on evolution to the pastors of the Evangelical Lutheran Church of England: in June 1986 Dr. John Klotz gave six lectures on the subject, and in the same month this year Glen Zweck will lecture again. How many denominations take the issue that seriously?

In January this year a Biblical Foundations and Creation Ministry Conference was held in Brisbane, Austrialia, Speakers included Prof. Wilder-Smith and his wife, Dr. Gary Parker, Prof. Rendle-Short, and John Mackay, editor of 'Creation Ex Nihilo.'



Creation In The News

For an event which, according to popular belief, never happened, creation continues to attract attention on the air and in the press. Recently attention has been centred around the views of Richard Dawkins. His book, 'The Blind Watchmaker' (reviewed in this issue), formed the basis for a programme on BBC2 on 19th January. The creationists received a dressing-down over the supposed human footprints alongside dinosaur tracks in Texas (which many now acknowledge to be animal tracks also), and then we watched the computer screen as Dawkins' 'biomorphs' appeared - shapes generated by the computer with a combination of a few simple rules and randomly generated numbers. The debate rumbled on, with articles in 'The Listener', 'The Daily Telegraph', and other publications, with letters, on both sides of the debate, in the newspapers, and scientific journals. Indeed, the book itself, and subsequent review by John Maynard Smith, sparked off a lengthy correspondance in 'New Scientist'. Predictably, the creationists were usually dismissed as being 'bad scientists', and using weak arguments; but opinions were divided as to whether Dawkins' arguments were damaging or advantageous to creation!

Earlier in the year, there was a repeat of a programme first shown in 1986, on 'The Creation' (BBC, 10th Jan '87). This was an intriguing examination and discussion of recent theories concerning the 'Big Bang'. Dr. Atkins of Oxford, a militant atheist, described creationists as 'intellectual excrement of the first order'. We must never be tempted to answer in kind; we must be properly humble about our theories, and quietly confident of God's revealed Word. John Polkinghorne, FRS, however, an Anglican priest and mathematical physicist, pointed out the limits of science, and that 'the laws of physics' themselves, in the absence of any matter, have to come from somewhere!

On the 'Sunday' programme on Radio 4 at the beginning of March, the presenter stated that the truths of creation were essential to a right understanding of the problems of AIDS - do we as Christians grasp the connection? A few weeks later, the Sunday morning service on the radio was devoted to the topic of 'creation' where the speaker was Dr. E. David Cook, of Oxford.

Two interesting comments came from David Attenborough on BBC2 Horizon, 16th March. Talking about the extinct Ammonite, he suggested it could have suffered 'a great environmental catastrophe'. Its supposed relative, however, the Nautilus, another marine creature with a coiled shell, is 'cheating evolution in style'. I still remain puzzled as to how evolution can be 'cheated!'

Chaos In The Cosmos

(This article was written some time before recent exciting observations of stellar activity, which in any event will take the scientific community time to digest; nevertheless the validity of the comments remains unaffected.)

Introduction.

The purpose of this paper is to consider the current status of theories of evolution as applied to the realms beyond the planet Earth. There are six broad areas demanding comment:

- A. The Chemical Elements
- B. Star Formation
- C. Evolution of the Stars
- D. Evolution of Galaxies
- E. Evolution of the Universe
- F. The Origin of the Universe.

These six topics taken together roughly constitute the subject of "Cosmology".

The approach adopted here is a mingling of comment with the statements of experts gleaned from my bookshelves. All emphases in the references have been added by me.

It will be easily recognised by readers familiar with biological evolution that there are many fundamental similarities in the realm of cosmological theories. In a sense cosmology is in a more precarious position than biology as far as strict science is concerned as the following definition of cosmology reveals:

"**Cosmology**, the study of the structure and dynamics of the universe as a single entity, is in any case **a peculiar kind of science**."

"It is by definition the study of a unique object and a unique event. No physicist would happily base a theory on a single unrepeatable experiment. No biologist would formulate general ideas an animal behaviour after observing just one rat, which might have peculiar hang-ups of its own. But we plainly cannot check our cosmological ideas by applying them to other universes. Nor can we repeat or re-run the past . . . ." [1]

Furthermore, apart from a very few extra-terrestrial bodies, no direct physical contact can be made with the rest of the universe. All information is derived from remote observation using one or other bands of the electromagnetic spectrum. the ways in which this is achieved is a full and fascinating study in itself but is set aside here for the sake of brevity. [2]

A. The Chemical Elements.

It must be constantly borne in mind that only the surface of heavenly bodies is seen. The abundances of the various elements is entirely inferred from what is superficially observed. In turn, **relative** surface abundances are derived from measurements made of the absorption spectrum for a given star processed through elaborate theory and hypotheses. It is generally assumed that the elements are formed by an evolutionary process involving nuclear fusion reactions.

"It is **believed** that there is a gradual conversion of light elements into heavy elements as a star evolves . . . . As observations of stars and gas clouds suggest that most of the material in that part of the universe which we can study is hydrogen or helium, there exists the **possibility** that the originally **created** matter had a very simple chemical composition and that all of the complications have been produced since then."

"The central question is thus: "What can observations of the present composition of the stars, ... combined with theories of the transmutation of elements in these objects, tell us about the original chemical composition of the universe?"

"At present it is not possible to give a clear answer to this question."

"We cannot expect to deduce the initial composition of the universe by working back from the present **complicated** and **uncertain observations.** Instead it is convenient to work in the opposite direction. If we assume an initial composition we can try to calculate what the present composition should be . . . ." [3]

A decade on from the above statement the same authority underscores the immensity and uncertainty of the problem when he asserts:

"It should be clear . . . . that a study of the origin of the elements involves a **knowledge** of galaxy formation, star formation and stellar evolution together with cosmology . . ." [4]

Hence a circular situation is peceived for the required knowlege alluded to above is inextricably bound up with how much there is of each element at the beginning.

An historical perspective is helpful here. When the Biblical account of the world was accepted at face value there was no problem for astronomers in understanding how the Sun could radiate steadily for the required 6,000 years or so. The sufficient mechanism was that the Sun contracting under its own gravitational forces heated up and so radiated. This process would be steady for a time in the order of 10^7 years. However as soon as geology and biology together appeared to require hundreds of millions of years for the Earth's history then a difficulty arose. It was not until nuclear processes were understood that a means of keeping the Sun **steadily** radiating could be postulated.

Notice that I say "**a** means" and not "**the** means"; for another interesting study which must be set aside here is that of matching the predicted side-effects of a nuclear heating process with the effects actually observed. [5] It is not at all clear that nuclear processes are taking place in the manner required by the back-up theories of the origin of chemical elements and of stellar evolution (see below, section C)

B. Star Formation.

I first refer to the comments of several authorities on this subject covering a period of 30 years.

(a) 1954 "We must recognise that theories of cosmic development . . . . are deployed within an enormous span of time and involve a sequence of events and conditions that are inaccessible to observation." [6]

(b) 1966 "Contemporary opinion on star formation holds that objects called protostars are formed as condensations from the interstellar gas. This condensation process is very difficult theoretically, and no essential theoretical understanding can be claimed; in fact some theoretical evidence argues strongly against the possibility of star formation. However, we know that stars exist and we must do our best to account for them." [7]

(c) 1969 "The condensation of stars is a difficult theoretical problem which has not been completely resolved. Gravitational contraction of the gas is opposed by turbulence and also by the presence of a magnetic field. The magnetic field can also prevent the break-up of a large cloud into stars. This difficulty can be avoided by supposing that the gas contracts en bloc and then explodes, ejecting pieces which will become star." [8]

(d) 1970 "A star settles down in a state which is almost independent of its previous life history. This is useful because even now there is no very good theory of how stars are formed." [9]

(e) 1971 At a specialist discussion meeting of the Royal Astronomical Society it was stated that:

(i) Condensation of stellar masses do not arise spontaneously;

(ii) Interstellar clouds, from which stars are assumed to condense, are apparently long-lived;

(iii) We are dealing with a problem which is not completely specified and whose specification we are in no position to give;

(iv) According to a model of star formation the process involved is a fairly violent one but that there is no reason to believe the model. [10]

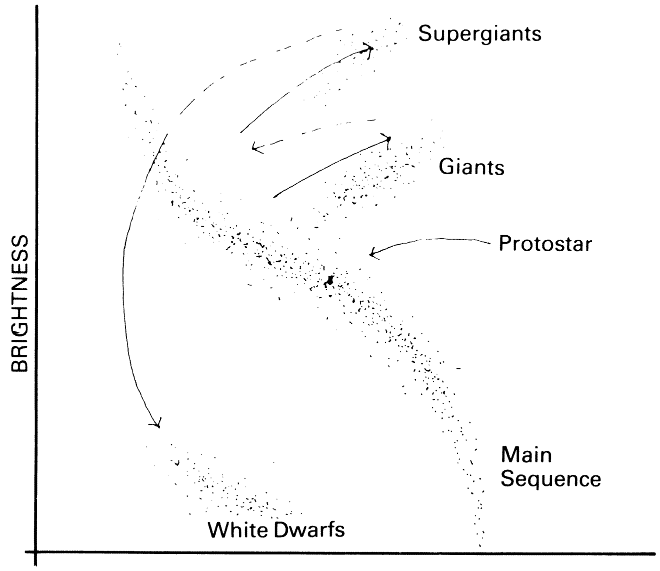
(f) 1979 "The future of stellar physics is again an exciting one, but it may be several decades before it is fully known how stars are born, live and finally die." [11]

The above speaks for itself. Stars exist - theoretically there are reasons why they should not! However, not all writers speak thus, and a later statement in the above series, made by a British Professor, tells the standard scenario of how stars form and where this is taking place:

(g) 1981 "The Orion nebula provides a good example of a gas cloud out of which stars are currently forming. The trapezium stars have condensed very recently, and one of them is heating up the gas to give the visible cloud of ionised hydrogen. Nearby we can see cooler condensations, radiating mainly in the infra-red, which are **probably** even younger protostars . . . ."

"The formation of a new star starts when some portion of a cloud of dust and molecules has a slightly higher density than average for the cloud. The self-gravitation of this region tends to make it fall together and, as this happens, what is by now a protostar heats up. Eventually the central temperature of the condensation becomes high enough for nuclear reactions to start. For a cloud composed mainly of hydrogen this happens when the temperature gets above 10^7K: hydrogen then fuses to form helium. The pressure in the protostar builds up until the pressure gradient can balance gravity, and the central and surface temperature then adjust themselves so that the amount of heat radiated at the surface is balanced by the amount of heat generated in the nuclear reactions at the centre. **A star is born**." [12]

The above quotation is typical of the popular view of star formation - all difficulties are swept aside and a confident and supposedly factual picture is presented. A similar viewpoint is adopted in a later series of articles in "National Geographic".[13]



SCHEMATIC HERTZSPRUNG-RUSSELL DIAGRAM
with an evolutionary track superimposed

The true state of affairs is implied in an announcement made in 1983 by the Astronomer Royal for Scotland. Speaking of the intended launch of a space-based optical telescope in 1986 he said that it "may help discover the precise sequence of events during star formation, what determines the rate of star formation and how matter behaves in strong gravitational fields." [14]

The evidence presented above suggests that the reader would be wise to have a healthy scepticism of all popular presentations of this subject. It is clear that a substantial edifice has been erected without regard to the quality of its foundations.

C. Evolution of the Stars.

Our starting point must be that stars in a variety of forms exist. How and why are they as they are?

"Perhaps the simplest idea would be to suppose that stars were **created** as very hot bodies and have been cooling down gradually ever since, but it is impossible to reconcile this with the Sun's steady luminosity for such a long time." [15]

Thus, as stated earlier, the Earth's geological and biological "history" - so-called - dictates the setting aside of this "simplest idea". This policy, once made, calls for a theory of evolution.

The theory is embodied in the accompanying Hertzsprung-Russell diagram. The diagram was first publicly discussed by Russell at a Royal Astronomical Society meeting in London on the 13th June, 1913 - a Friday too! Russell immediately linked his diagram (which is a schematic presentation of star brightness against colour or their equivalents) with the theory of evolution proposed by J. H. Lane in 1871. Note the proximity of this date to 1859. Lane's theory was based on the idea of a contracting cloud of gas and came at a time when astronomers were trying hard to keep the Sun burning for the millions of years required by the contemporary biologists and geologists. Details and mechanisms have changed much since then but the essence is the same. In 1927 it was stated that:

"Progress is still rapid . . . . The final theory, when it comes, may be very different: but if nothing should be set down except what is firmly established, the subject of stellar evolution could not be discussed at all." [16] For '1927' one could easily read '1987'.

The evolutionary track traced out by a star in its life-time is based on two main suppositions:

(a) Nuclear reactions are causing changes in chemical composition;
(b) There is no mixing of the gaseous "layers" in a star.
If there is mixing of the internal parts of a star then the tracks are very different.

It is instructive to examine carefully the published evolutionary tracks as given by different authors since it soon becomes clear that there are many different ideas and much uncertainty. Some authors will admit the uncertainties showing them with dotted lines on their diagrams (see ref. 17 for example); but there should be a link at all must be a matter of assumption, not fact.

Why do these uncertainties arise? Consider the following:

"If we consider a star at a slow stage in its evolution and if we specify its mass and chemical composition we can in principle calculate its structure and hence all of its observed properties." [18]

We have already remarked upon the problems of composition. What of the mass of a star? It would appear that the masses of stars are very imperfectly known and that this imperfection has certain knock-on effects.

"The determination of stellar masses from spectroscopic data requires, in principle, a complete understanding of stellar atmospheric structure, including the effects of turbulence and convection . . . . and variations in abundance of individual elements. Where **very accurate data** are available, as for Arcturus, it becomes clear that uncertainties in derived temperatures, masses and chemical composition are both larger and somewhat more interdependent than is usually supposed. As a result it takes surprisingly large error bars e.g. $0.7 \pm 0.5\ M_{\odot}$ to bracket all modern determinations of the mass of Arcturus." [19] The article goes on to discuss why these things are so and what, "**if anything**", can be done about it.

In paranthesis it is worth noting that beyond the Solar System the world of Astronomy is, by it's very nature, anything but an exact science. For example, errors in distances to stars are admitted to be typically 20% and in luminosity (absolute brightness) 40%. These errors should not be taken as a criticism of astronomers but they arise because of the (indirect) measurement techniques which of necessity have to be used.

Doubt has already been cast on whether nuclear processes are taking place in stars in the manner assumed. The chief reason for this comes from the results of the solar neutrino experiment.[5] The experiment was designed to detect neutrinos (once though to be a massless fundamental particle; but see ref. 20.) emitted by the nuclear reactions in the centre of the Sun. The number detected is lower than the number predicted by a significant factor.

"Untill this result is understood, there must be some doubt attached to all the detailed predictions of the stellar evolution theory." [18]

One is bound, in conclusion, to ask whether evolution of the extent and scale as popularly described has taken place at all - the evidence is surely of a very tenuous and possibly illusory nature.

D. Evolution of Galaxies.

Under this heading we shall consider galaxy formation and the evolution of different types of different types of galaxy.

"Accepting the **hypothesis** that the universe as we see it began with a cosmic explosion about 10 billion years ago then immediately after the explosion space was filled with a **homogeneous** expanding gas. As the gas cooled **local irregularities** in density developed and these slowly contracted under the force of gravitation. These clouds of contracting gas were protogalaxies. Simply **by chance** the clouds would have different masses and most would have some net rotation. As a cloud shrank it would have to spin faster to conserve angular monentum. The **belief** is that if the shrinking cloud exceeded a certain speed not all the mass would be able to contract. The galaxy **might** break in two, or it **might** throw several fragments out into space. Alternatively it **might** eject masses of gas along its rapidly rotating equatorial edge. Those protogalaxies that were rotating only slowly could contract without losing mass until the gas became compressed enough to form stars. These became the massive spherical and elliptical galaxies we see today. More rapidly rotating systems presumably would not be able to contract all their mass." [21]

So runs a typical view of the formation of galaxies. However the theory of galaxy formation is in no more of an advanced state than the theory of star formation. With theoretical advances such as black holes come new ideas on galaxy formation. (see, for example ref. 13, p. 746).

Once formed, how do galaxies evolve? An early view, now known to be false, was to assume that the Hubble "Tuning fork diagram" of galactic types represented an evolutionary sequence.

"Scientists have a tendency to simplify concepts - to seek "understanding" - by finding a few simple starting blocks and trying to perceive logical steps of transformation that unify a whole range of observations. But the problem of discerning **real** evolution in the galaxies is a difficult one . . . . In an instant of cosmic time humans try by acute observation and logic to **guess** the way galaxies are formed, how they evolve and the relations among them. It is particularly important to look for critical distinctions among galaxies in trying to decide which ones belong to an evolutionary sequence and which ones perhaps to completely different races or species with innate differences".

"If the analysis is correct most of the distinctively different types of galaxies represent different species and are not one species seen in different epochs of aging." [21]

One astronomer has suggested that observations provide tentative evidence that some galaxies undergo an early rapid phase of star formation (and the rate of star formation is a major factor in galactic evolution). However, the identification of a bona fide primeval galaxy undergoing an initial intense burst of star formation has as yet proved elusive. A possible reason for this, it has been suggested, is that star formation in certain "young" galaxies occurs not in a single large burst but less spectacularly in a series of small ones.[22] There are obvious parallels here with biological evolution.

One must conclude that the subject of the evolution of galactic types and the galaxies themselves is in a vague uncertain state - it is bound up heavily with the matter discussed in Section B and C.

E, F. The Evolution and Origin of the Universe.

The observed universe yeilds a general picture of remarkable uniformity on the large scale overlaid with a general expansion. It is, of course, taken for granted that the universe has evolved because that is the framework in which all (or apparently all) astronomers seem to think. The expansion of the universe is the starting point in any evolutionary theory currently proposed. Inherent in all theories too is the assumption that it is possible to determine distances to the furthermost galaxies with a reasonable degree of accuracy; that physical constants have always had the same value throughout the space-time continuum or that they have varied in a known (or rather assumed) manner; and that the mathematics and physics of planet Earth is universally applicable. If any of these three stages are invalid then any theory immediately topples. To discuss the validity of these points involves several major excursions into observational techniques and, above all, out of the arena of pure science and into the realms of philosophy. I do not propose to make these excursions at the moment!

I will let the following statement of a highly regarded cosmologist speak for itself:

> "Cosmologists . . . . start by using the physics that is validated locally and making simplifying assumptions about symmetry, homogeneity etc. There seems no reason why the Universe should be so ordered that this permits any real progress, but unless there is a firm link with local physics, cosmology risks degeneration into ad hoc explanations on the level of 'Just so' stories. What does seem amazing is that this has lead to some progress - that the Universe is comprehensible. Questions such as how the Universe began and how it will end can now be addressed scientifically, and not just in our unprofessional moments. Speculation is at least somewhat bridled . . . ." [23]

The main stream of theories of the evolution and of the origin of the universe are the "Big Bang" type. This subject has been dealt with in a paper presented in a previous edition of **Biblical Creation** by Dr J. B. Griffiths. [24] Thus no further detailed discussion of this topic need be given here.

When all the evidence presented here is assessed and evaluated (and much of it is from acknowledged experts in their various fields) it must surely be agreed that there is a strong case for setting aside the various theories of evolution on the grounds of insuffcent "hard facts": the case is not proven. Another type of solution to the existence of the universe must be sought. The situation in orthodox science is not unlike the task of solving a set of simultaneous equations with one variable left out of the system - the result of all efforts will be failure to find a solution that accords with reality. It will be re-called that the "simplest idea" was set aside. It is here asserted that the simplest idea demanding a Creator will in fact make sense of the observed universe and that to leave out the Creator is to have an effect without a cause. That is, if God is excluded, then the universe is a miracle. If God is included then His revealed word says that the universe is a miracle - Creation ex nihilo. We have these two relationships:

God + miracle = sense
Universe + miracle − God = non-sense.

Now if in view of the enormity of the space-time continuum and all that has taken place within it is to be taken as functioning without adequate original cause, or if it be asserted that the cause need not be known or understood then we may equally assert that not to know and not to understand how God created does not invalidate the claim that He did so.

My basic conclusion is this: That while scientific investigators leave the Creator out of their assessment of properly obtained data then no matter how much time or energy is applied to understanding the universe, in whole or in part, there will be no progress made of a satisfactory or lasting nature.

(For further reading : A general Christian introduction to issues in cosmology is 'The Earth, the Stars, and the Bible', by Paul M. Steidl, published by Presbyterian & Reformed, and available from B.C.S. This volume was reviewed in "Biblical Creation No 7 - Ed)

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Reports

A Reply To Richard Dawkins: An Analysis Of Analogies

On Friday 14th February 1986 the Oxford Union Society (the debating society at Oxford University) held a Debate on the motion:

> "That the doctrine of creation is more valid than the theory of evolution".

One of the speakers opposing the motion was Dr Richard Dawkins. David C. C. Watson was present and now comments on some of his arguments.

1 RD: "The logical status of the evidence for the Theory of Evolution is just the same as the logical status of the evidence that the Roman Empire existed . . . ."

Comment. a) There is no 'theory' that the Roman Empire existed. What has never been disputed as a fact does not require a theory to undergird it, mainly because it depends on **human testimony,** which is also the basis of true science. If a man is found murdered, there may be twenty different theories based on circumstantial evidence; but if twenty people **saw** him murdered, and their testimony agrees, it is absurd to speak of the 'theory' of how he died. There were millions of eyewitnesses of the Roman Empire; thousands of them wrote about it, and hundreds of these writings have survived -- books, letters, decrees and monuments. In broad outline, their testimonies agree. They could not possibly have been faked; the evidence is indisputable.

By contrast, Darwin's theory was hotly disputed from the day of its birth. Why? because nobody has ever observed macro-evolution in any country in any century in any shape or form - no fish becoming frogs, nor any of the fossils of the necessarily numerous transitional species.

b) There is a perfectly satisfactory alternative explanation of the natural world -- "God made things that way" --; whereas there is no conceivable alternative explanation for Latin literature and Roman ruins.

2 RD: "If you plot a tree of Cousinship based on one kind of molecule, you will get a particular kind of Family Tree. You then go and do the same with a different molecule: and, lo and behold, you find the same tree . . . that's exactly the pattern you'd expect to find if they had evolved from different ancestors or more recent ancestors for closer cousinship . . . . it is rather similar to the kind of evidence that textual scholars use when they compare documents."

Comment. It is true that the word 'family' is used both about MSS and in zoological classification, but in the former it denotes a much closer similarity than in the latter. Wolf and Pekinese belong to the same 'family', but no MS of (say) Mark's Gospel differs from another by anything like the degree of disparity between those two animals. It would be nearer the truth to say that variations between MSS resemble varieties within the same species of dog, e.g. differences of colour & size within the SPANIEL species. No amount of extra- polation will ever prove that Mark's Gospel has a common ancestor with 'Romans', and no amount of extrapolation will ever show that dogs share a common ancestor with cats.

Regarding the 'tree of cousinship', Michael Denton (EVOLUTION: A THEORY IN CRISIS) devotes a long chapter (pp 274 - 307) to bringing into serious question the idea that biochemistry supports evolution. Two quotations: ". . . molecules, like fossils, have failed to provide the elusive intermediates so long sought by evolutionary biology. . . The only relationships identified by this new technique are sisterly. At a molecular level, no organism is 'ancestral' or 'primitive' or 'advanced' compared with its relatives . . . if this molecular evidence had been available one century ago, it would have been seized upon with devastating effect by the opponents of evolution theory like Agassiz and Owen, and the idea of organic evolution might never have been accepted." (pp 290, 291)

3 RD: "Of course the fossil record is full of gaps! When you read human history you don't expect to find a complete narrative of every single thing that happend..."

Comment. Let us consider what kind of events **are** recorded in history: for the most part they are **extra-** ordinary, **un**usual things. What you eat for breakfast probably doesn't go into the diary, but a change of job does. More books have been written about the years 1789 - 1800 in France than about all the other decades of the century -- because the Revolution was a **turning-point** or transitional point in French history. Now -- what do we find in the fossil record? We find that fossils are missing at precisely those transitional or turning points where we would most expect to find them IF evolution has occured. We find millions of invertebrates, but none beginning to sprout backbones; millions of fish, but none with incipient pelvises or feet. We find millions of reptiles but none attempting to fly with half-formed wings . . . the gaps are **systematic**, just as systematic as the gaps between living fish and snakes and ducks and dolphins today. So this analogy, too, is inapposite and misleading. The outstanding feature of History is that it documents change, transition, transformation. The outstanding feature of the fossil Record is that it documents 'stasis'. In palaeontology all the 'links' are missing; in history all the links are there.

4 RD: ". . . provided you are allowed enough steps in the argument -- enough generations in the intermediate stages -- it is possible to derive (e.g.) a human form from a bacterium . . . you could imagine marching from Paris to Moscow, and every pace you take is 1000 years. 1000 years is about time to breed a new breed of dog . . . you might take 2000 or 3000 years to breed a pekinese from a wolf. Every step you take on the road from Paris to Moscow you image a change equal to the amount of difference between a wolf and a peke. Produce that change out for the distance from Paris to Moscow, and you will have some idea of the power of Evolution . . . in explaining our existence."

Comment. This argument is flawed at two vital points:

a) Homoeostasis. Every breeder knows that variation is possible only within definite boundaries. You can breed up to a 120lb great Dane and down to a 4lb Chihuahua, but you can**not** breed a dog the size of a shire horse, nor the size of a mouse. Reversion to the mean or average is a law of Nature, well established. Now, a wolf weighs ten times a peke, and it may be possible to breed a peke from a wolf in 2000 years; but you will **not** be able to breed a dog ten times smaller than a peke in the **next** 2000 years. It will reach the limit of smallness and begin to revert to type. So your second step from Paris to Moscow will certainly not achieve what your first step achieved -- even in the matter of size, which, of course, is only one of the great number of features wherein a wolf differs from a peke.

b) Dawkins chooses to overlook the fact that wolf-peke change was effected by **artificial** breeding, not by natural selection. In nature, wolves have been wolves as far back as human records go. In the wild they show not the least interest in dogs -- except as prey. So the extrapolation from 2000 years of artificial breeding to 20 million years of natural selection is wholly inadmissible.

On both counts, then, the transmutation 'walk' from Paris to

Moscow is a non-event. He is disqualified after only one step!

5 RD: “Suppose the motion debated tonight were to be passed . . . the fundamentalist lobby would exploit it to the full.”

Comment. What is this but an appeal to pride and prejudice -- nothing whatever to do with science? He is saying, in effect, ‘Vote for evolution, not because it is true, but because -- if you don’t -- Oxford University will be laughed at!’ When a scientist has resort to such special pleading, one may wonder what has become of his science.

6 RD: “I must say, Madam President, a professional zoologist finds it rather depressing that this debate has to take place at all . . . how was it possible for you to **dredge up** four speakers in favour of this motion tonight? . . . I cannot believe that more than a handful of people getting through the net of our Admissions procedure will take seriously any argument in favour of the literal truth of the first chapter of Genesis.”

Comment. A scientist who proposes solid scientific arguments has no need to use the weapons of ridicule and intimidation on a student audience.

7 RD: “. . . the creation theory is a **little** theory . . . not worthy of the universe in which we now live. If there is a God, he is surely going to work on a larger scale . . . the kind of creationism we have to fight against in our profession . . . is BLASPHEMY!!”

Comment. Can this stand up to close scrutiny in the cold light of day? Dawkins says that a God who made the universe in six days is a ‘petty’ god; a God who took 20 billion years would be ‘great’.

You want a Channel Tunnel built, so you invite tenders. One engineering firm says they can do it in 60 years; another say six years. Who gets the contract? Which is the ‘greater’? Surely, **speed speaks of power**, and the God who made everything in six days is infinitely more powerful, infinitely greater, than Dawkins ‘ pedestrian’ deity who has to toil for billions of years -- alternately making and breaking His own flawed experiments until something workable ‘happens’ to evolve.

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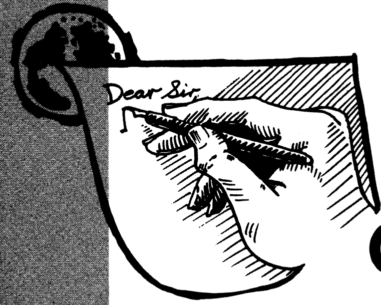
Conclusion: Dawkins’ defence of evolution was clever, well-timed and well-tuned to his audience. It help to achieve the desired effect of winning the debate (198 - 115). But close analysis reveals it is a masterpiece of rhetoric, ridicule, intimidation, false analogies and outrageous theology. Facts speak for themselves, but ‘science fiction’ needs all the help it can get from eloquence and art. This speech was an ingenious rearguard action for a theory which a number of impartial observers now perceive to be a delusion and a Lost Cause.



Correspondence

Letter from Paul D. Ackerman,
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Dear Editor:

Regarding Hywel Jones’ review of Henri Blocher’s **In the Beginning** (Vol. 8, No. 24; Autumn 1986) it seems to me that the central problem of Blocher’s work has been overlooked. Blocher’s analysis is based on a distinction between “the literal” and “the literary.” If evidence of high literary form is at issue, then the probability is increased that the author “is stepping away from the zero point” of ordinary literal prose. In other words, evidence of artistic, literary form considerations in Genesis 1 reduces the need to accept the literal details such as chronology for instance.

Now in the present fallen world this might be true, but does such a state of affairs apply to the unfallen world that was “very good?” I would suppose the opposite. Tension between such aspects of the world as the literary and the literal are indications of its fallen condition. Other examples would be the tension between one’s desire and one’s duty, between what we want to do and what is good for us, and between short-term and long-term benefits. (Credit for this blessed insight goes to my dear CSSHS colleague, Ellen Myers.) In heaven there will be no such tensions. In eternity, the precise details of our experience will be expressible in the most sublime of literary form without doing the slightest violence to the experience.

The basic problem with Blocher’s book is not in the conclusion or even perhaps in the specific method employed to arrive at the conclusion. It goes deeper than that. Autonomous reason has been set up in judgement of Scripture. But is this reasonable? Is not reason itself fallen? The teaching of Scripture is childlike submission to God’s Word, not judgement over it. Is this not the example given us by the prophets, apostles, and Christ Himself? Submission leads to edification while judgement and scrutiny via the method of autonomous reason leads only to wrangling and endless presentations of alternative rational points of view.

The discovery of high literary considerations in writing of Genesis 1-3 blesses me greatly, but not because such discovery challenges my “literal view.” My literal view has long since become a matter of obedience and submission for me. (I hasten to add, however, that by saying so I do not intend to judge my fellow Christians. God deals with each of us in His own time and in His own way. He knows His own and in the fullness of time will teach us all things.) The discovery of literary form in Genesis 1-3 enhances my vision of eternity. My vision of the restoration of all things is lifted higher still, as is my sense of the awful wages of sin that permeates every sector of God’s wonderful creation now corrupted by the fall. How I long for that restoration. Eternity will be one long hymn, one long Psalm. The cleavage between the mundane and the artistic will be gone forever. God bless us all.

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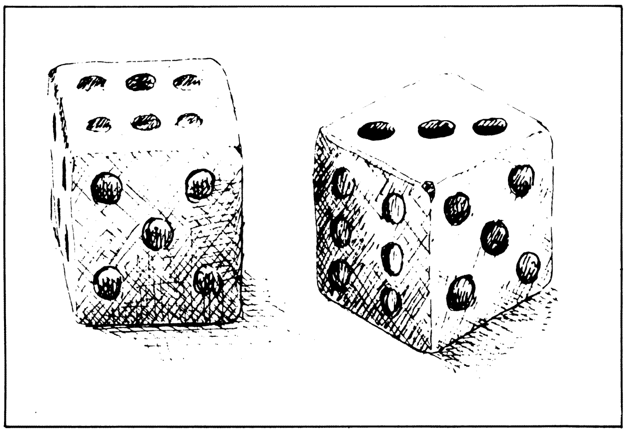
• Journal of the Biblical Creation Society •

The Statistical Improbability of Evolution



The Importance of Insulin.

Simple probability (the Laws of Chance) proves emphatically that the evolution of any form of life is highly improbable. Consider the case of insulin. Did it come into existence by means of evolution? Did it evolve within species by means of random mutations?

Insulin is a hormone of all vertebrates, without which it is highly doubtful that they could have either come into existence in first place, or been able to continue in existence. It is absolutely vital to their life. (All insulin dependent diabetics know of the necessity of insulin to life).

Insulin is a protein made up of two linked chains of amino acids. All proteins are made up of chains of amino acids. There are 20 different biological amino acids that go into the making of proteins, and insulin has a total of 51 amino acids in its two polypeptide chains. There are 21 amino acids in one chain and 30 in the other.

It is fanciful to suggest that insulin was evolved in species by the workings of blind chance. Insulin is no chance product. The number and sequence of its amino acids is genetically determined, and any change, however slight, in the number or sequence of the amino acids results in a fatal loss of function and the production of an entirely different protein which cannot take the place of insulin. The protein structure has to be exactly right if it is to function as insulin.

The number of different proteins that can be formed out of polypeptide chain sequences containing 51 amino acids is

$$20^{51},$$

or 2.2×10^{66}

That is to say that the chance formation of the insulin molecule can be no better than

1 chance in 2.2×10^{66}

This is an infinitesimally small chance, as we shall shortly consider.

Insulin, like every other protein, is made by a gene. Genes encode proteins, and proteins in turn, by means of their structural or selective binding functions, have a major biochemical role in the living cell. It is the precise structure of the genes which determines the structure of proteins. But insulin is supposed to have evolved in species through a process of 'trial and error' with gene structure until the correct formula for encoding insulin was found, and when it was found it was preserved through 'Natural Selection'.

But how long a time would be required for the completion of this process? Let us see.

The Time to Change.

Changing an amino acid in the experimental protein would require 'point mutations' to the gene making the protein. The genes are stored along the length of the DNA molecule, and point mutations to the DNA do in fact occur at the rate of 1 in 10^{66} nucleotides replicated at the time of DNA replication. This is an exceedingly slow rate of mutation, and so, in order to give evolution some chance of succeeding, we will hypothetically speed up the rate of mutation. We will allow one amino acid on the experimental protein to be changed for another amino acid at every generation. This means that we have speeded up the mutation process to the gene, and reduced the time needed for 'evolving' the insulin molecules, by a factor of one hundred million. We shall see shortly that this proves to be but an infinitesimal saving in time.

We will now further suppose that this experimental protein of 51 amino acids is evolving into insulin within a population of some two thousand two hundred million would-be vertebrates (2,200,000,000). This is a very large population, further speeding up the process by a factor of 2,200,000,000.

Let us also say that there is a new generation of 2,200,000,000 individuals every year, and that each individual in each generation carries a different sequence of 51 amino acids in the experimental protein to any other individual.

How long will evolution require in this manner to 'explore' all the possible sequences of 51 amino acids and thus to come up with the insulin protein? Well, even at this phenomenal rate the process of evolving the insulin protein would take

1,000,000,000,000,000,000,000,000,000,000,000,000,000,
000,000,000,000,000,000 years!

i.e. one thousand million million million million million
million million million million years.

If it would take such a long time for just a small protein like insulin to evolve, (let alone a complete living organism) how unrealistic is the claim of evolutionists that two thousand million (2,000,000,000) species of living things have evolved on earth over the past 600 million years (as claimed in SCIENTIFIC AMERICAN, Sept. 1978, p. 157). That means that an entirely new living species is supposed to have appeared (evolved) on average every 4 months of the year over the past 600 million years. Just think of it. A complete living thing evolving in just 4 months! Such is the faith of the evolutionist!

Now we have considered the case of the supposed evolution of the insulin protein alone. But living organisms produce myriads of proteins within themselves. Humans have some 6 million genes, and, since genes make proteins, the human body must make some 6 million different proteins, all of which, like insulin, are supposed to have evolved by the blind process of 'trial and error'.

The Other Proteins.

One of those 6 million proteins is haemoglobin, which is common to all vertebrates, and occurs in some other living organisms besides. It is found in the red blood cells of vertebrates. The globin has two identical halves, and each half consists of two polypeptide chains, one chain of 141 amino acids and another chain of 146 amino acids. A mutation in half of the molecule, which results in a change of just one amino acid in the longer chain, - one glutamic acid being replaced by valine, - i.e. a change of 1 amino acid in 287, results in the lethal disease of "sickle cell amaemia" in humans. Such is the inflexibility of living things towards mutations and genetic change. Such is the unlikelihood of 'development' by means of evolution (mutations).

But what is the probability that these 6 million human proteins could have evolved by means of unseeing mutations?

Well, the average protein length is 333 amino acids. That means that the total length of protein 'evolved' must be 333 x 6 million amino acids. That is a total of 1,998,000,000 amino acids. And the number of different sequences of 1,998,000,000 amino acids that can be formed is $20^{1\,998\,000\,000}$, or $10^{2\,599\,457\,932}$. That is to say that the chance of evolution getting this long sequence exactly right (which indirectly depends upon the DNA nucleotide sequence) can be no better than

1 chance in $10^{2\,599\,457\,932}$

The human mind cannot even begin to imagine how small a probability this is. But let us at least try to get some idea of how small a chance it is. To tell out the number $10^{2\,599\,457\,932}$ in words you would have to say:

"ten thousand million million million million . . . . . million";

in the course of which you would repeat the word "million" 433,242,988 times! - and it would take you more than 6¾ years non-stop to say the word "million" so many times. Further, if the number were typed out in full, it would be written with a "1" followed by 2,599,457,932 zeros. Typing 12 figures to the inch the length of the number would be 3,419 miles, and it would take over 41 years non-stop to type out the 2,599,457,932 zeros.

Such are the enormous odds against the chance formation of the human proteins. Clearly eternity itself would not be time enough for the evolution of the human species on this basis.

In the face of such clear figures it is a statistical fallacy to claim that the human species evolved by the blind workings of chance. It is infinitely more plausible to believe in the miracle of creation.

(Strictly speaking, the foregoing calculation should have been carried out on the nucleotide sequence along the total length of human DNA which makes the proteins, but it is simpler to do the calculation on amino acid sequences, which in any case gives a result more favourable to evolution, thus underestimating the improbability involved).

Nature Shortens the Odds?

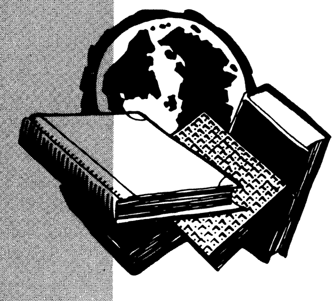
But the evolutionist argues that the extreme improbability of it all can be, and is, defeated by the working of 'natural selection'. Natural selection, it is claimed, allows short cuts through the lengthy working of blind chance, thus dramatically reducing the time scales ordinarily involved. Thus it was possible for all life forms to evolve within the time scale of the geological ages of some 4,000 million years.

We might well ask, "How is natural selection supposed to be able to do this?" Natural selection means "survival of the fittest in the struggle for existence". It is claimed that natural selection preserves mutations which have survival value by allowing them to breed into a population. It is then the cumulative selection of such favourable mutations which results in evolutionary development and progress. The successive favourable mutations build up on one another, giving direction to evolution and allowing the gradual development of such direction to evolution and allowing the gradual development of such complex organs as the eye and brain, to say nothing of an entire living organism such as a human being.

This argument is utterly fallacious. The preservation of a 'favourable' mutation is just that, and nothing else! It does absolutely nothing to influence the occurrence or accumulation of further 'favourable' mutations and gives no guidance or direction to future development. Future 'development' remains just as subject as ever to the interminably long process of blind chance. In any case how is natural selection supposed to 'know' that amino acid sequence is likely to change into a "good" protein? - and good for what?

It is entirely without justification to claim that the **construction** of vital organs and even whole organisms can come out of the purely **destructive** process of blind mutation. The truth is that natural selection, if it does anything at all, **preserves** the origninal perfection of species and **opposes** change by eliminating unfortunate mutants, seeing that practically all mutations are harmful. Thus natural selection opposes evolution.

Conclusion: the verdict of statistics is that organic evolution is so utterly improbable as to be essentially equated with the impossible.



Book Review

Author : Richard Dawkins

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Reviewed by Andrew Jackson

I have just finished reading **The Blind Watchmaker** and I really do not know what to say. Never before has a book given me such mixed feelings. On the one hand it is a masterpiece of explanatory skill which fills me with great admiration for a brilliant teacher, but on the other hand it is more than an academic treatise; it is an advocacy of a view of life which fills me with great sorrow. When admiration and sorrow such as these are mixed then perhaps you can understand my dilemma.

Richard Dawkins is an evolutionary biologist who has a predilection for good ideas and novel ways of explaining things. Think of him as a philosopher or theoretician rather than as a practical scientist. But be prepared, for in reading this book you will not encounter much in the way of technical details or argument which rests upon scientific exactitude; in your duel with the author the weapons of eloquence, analogy and imagination have already been selected.

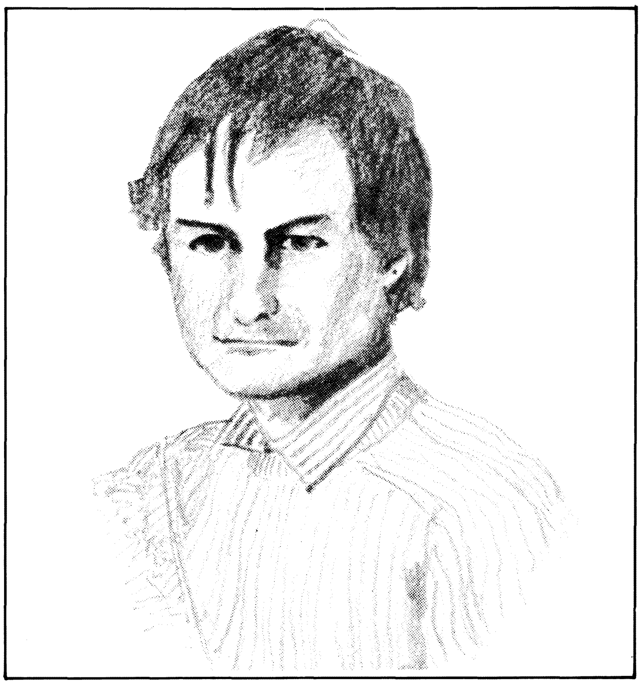
The subject of Dawkins' latest book (his first being 'The Selfish Gene') is how evolution by natural selection can explain the existence of complicated living things which look as if they have been built by a conscious designer. Since natural selection does not have an 'end product' in view it can be said to shape organisms blindly. Thus in Dawkins' view the watchmaker of Paley's famous analogy is not God but simply blind natural selection.

My first commendation and my first criticism of the book stems from something already mentioned, namely Dawkins' philosophical way of defending evolution. I think he is right to say that much of the opposition to evolution is through ignorance or misunderstanding of Darwin's theory. For instance, how many of us have thought at some time or other that selection is supposed to shuffle all the genes in an organism at the same time and have gleefully arrived at the conclusion that the probability of evolving anything substantially different is vanishingly small? Does not this sort of argument abound in creationist literature? Using word shuffling analogies and simple computer models Dawkins demolishes this old stumbling block and makes it clear what the theory has postulated all along is not 'single step' selection but cumulative selection. The book contains a lot more of these corrections to very elementary misunderstandings of Darwinism; and Dawkins, in my opinion, is to be applauded for putting the record straight in such a readable manner. As Christians we have respond to it and I think in many areas of the creation-evolution debate we have sadly failed in our duty.

On the negative side it has to be said that the defence of a theory merely on a philosophical level is insufficient; just by showing that a theory is plausible does not make it true. Natural selection may be possible as Dawkins shows but the question is: did it ever happen on a large scale? to answer this we must look at the raw data and the technical details - in other words the fossils, the dating methods, the artefacts in the fossil record, etc. - which Dawkins conveniently leaves alone. To be fair, Dawkins is not qualified or interested in these areas and we must respect the intended scope of his book; however, there are indications if we read between the lines that on a personal level he would rather not know about such areas or be engaged in argument about them. Take for example his abdication of his responsibility to consider the origin of things before life (pp. 14-15). Explanation is hierarchical he says and so he trusts the physical scientist (in this case Peter Atkins) to tell him how the physical universe has evolved. He even seems to swallow Atkins' idea that given a minimum of complexity in the original precursors the universe as we now know it would almost inevitably spring into existence. But I immediately ask myself the questions: who or what designed the rules governing the behaviour of these precursors? I do not believe that Dawkins has not recognised this problem - it would be totally out of character. Does he then really want to hand over this part of his conscience into the custody of a mere physical chemist? Or is he, as I suspect, too afraid to face the problem himself, lest he be faced with the reality of God?

Not only does Dawkins' illustrative approach enable him to evade the burning issues but I fear that it will also cause some people to equate plausibility with truth and to think that because something is workable on a simple analogical level that it is true in reality. His idea of the biomorph land is a good example. This model is really only a modification of the Adaptive Landscape model of Sewall Wright where the 'value' of different genes is plotted against fitness to produce a n-dimensional topography in which organisms are trapped in the peaks of high fitness. The mathematics of modelling the movement, or 'evolution', of a point on the landscape by drift or by change in the landscape topography would be, as you might expect, exceedingly complex. Even though one might imagine the sort of path needed to be taken through the landscape to arrive at a new organ such as an eye, it is far from obvious when all the constraints are taken into consideration that the improbability of the change is within Dawkins' tolerable limit - even when we do have millions of years to play with. Biomorph land, like the adaptive landscape, is a land of make-believe. Given enough time, given small enough changes - as Dawkins constantly reminds us - we could argue for the evolution of self-replicating teapots, or perhaps for some of the human artefacts found in 'ancient' strata. Clearly, there must be severe constraints on how much can happen within n-dimensional hyperspace; constraints perhaps so severe that no major changes could occur at all!

Overall **The Blind Watchmaker** should make very interesting and entertaining reading to anyone, whatever his or her view of the origin of life. Dawkins has the habit of choosing his analogies and metaphors very carefully so that he can express his opinion on as many other subjects as possible. It is quite amusing, for example, to see his attitude toward the pop music sub-culture whilst he is at the same time illustrating positive feedback processes (p. 219).



But, to return to my original remarks, my other reaction to the book was, and is, one of deep sorrow. I am not disturbed by the persuasiveness of his arguments (because my own policy is to be convinced first from scripture and then to **expect** the natural world to conform to scripture, rather than to justify my belief by evidence from the natural world) but rather by the reason he had for writing the book. It is my hypothesis that it was written because the author was afraid of or felt greatly challenged by Christianity and biblical creation and that he needed to preach his own religion and rally support from fellow believers. My evidence in support of this hypothesis is as follows: although the 'fundamentalist creationists' are ostensibly just one out of a number of enemies that he is addressing it is quite clear from the title of the book, from the more than ten scriptural quotations (many of which are not exactly famous), and from the fact he simply 'doth protest too much' that he has given Christianity more than just a disdainful glance. It is equally clear, however, when we read an admission such as is found on p. 165, that evolution for Dawkins is not a scientifically falsifiable matter but a matter of faith.

> 'So we have arrived at the following paradox. If a theory of the origin of life is sufficiently 'plausible' to satisfy our subjective judgement of plausibility, it is then **too** 'plausible' to account for the paucity of life in the universe as we observe it. According to this argument, the theory we are looking for has **got** to be the kind of theory that seems implausible to our limited, Earth-bound, decade-bound imagination. Seen in this light, both Cairns-Smith's theory and the primeval-soup theory seem if anything in danger of erring on the side of being too plausible! Having said all this I must confess that, because there is so much uncertainty in the calculations, if a chemist **did** succeed in creating spontaneous life I would not actually be disconcerted!'

If that is not having one's cake and eating it I don't know what is.

These two factors, the frequent allusion to Christian things and passionate faith that Dawkins has in evolution lead me to the conclusion that **The Blind Watchmaker** is not primarily a book about evolution but a book about atheism.

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